National Aeronautics and
Space Administration

John C. Stennis Space Center
Stennis Space Center, MS
39529-6000

SCWI-1800-0005
Rev. I
October 2020

COMPLIANCE IS MANDATORY

John C. Stennis Space Center
Hazard Communication

RELEASED - Printed documents may be obsolete; validate prior to use.

Approval/Concurrence

Signature on file October 15 2020

Michael A. Pannell, PhD, CIH
Occupational Health Officer

Date

Document History Log

Revision	Change Date	Originator/ Phone	Description
Basic	10/22/2008	M. Blotzer/ 8-2584	Initial release.
A	09/08/2010	D. King/ 8-1941	Several changes were made to reflect the responsibilities, reference, maintenance, and compliance with regards to a new Stennis form: SSC-862, Hazardous Materials Approval Form. Sections affected: Section 3.0, addition of form to References List; Section 4.2, FOSC responsibility; Section 4.3, Requestor's responsibility; Section 5.2, use of form; Section 6.0, Records Retention. Added labeling of hazardous waste containers in Section 5.5
B	08/03/2011	K.Wright/ 8-3263	Added Section 8.0 (Acronyms) and changed verbiage in section 5.5 to require labeling of immediate use small transfer containers regardless of time usage. Added verbiage to 5.2 to outline additional requirements for approval of hazardous materials.
C	11/01/2011	K. Wright/ 8-3263	Added labeling exemption and additional training requirement
D	8/21/2013	B. Walters/ 8-1234	Changes were made to reflect OSHA GHS revisions to the standard. New and revised terms and definitions were added. Training requirements were clarified.
E	10/01/2014	B. Walters/ 8-1234	Minor clarification revision in Section 6.0 to specify the applicable SSC form for hazardous materials approvals.
F	09/30/2015	R. Cranford/ 8-3173	Minor formatting and grammatical changes. Included list of chemicals not allowed at SSC.
G	04/12/2016	K. Wright	Replaced FOSC with SOC throughout the document

		X 8-3263	
H	01/20/2017	D. Manieri/ 8-3823	Added hexavalent chromium(in paints and coatings), and hydrofluoric acid in section 5.2. Clarified training requirements.
I	10/15/2020	M. Pannell /8-2555	Revised Restricted Use Chemicals, Clarified labeling, add OSHA Standard Labels Appendix

Table of Contents

1.0 Purpose

This plan establishes a Hazard Communication Program in compliance with the Federal Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard, 29 CFR 1910.1200. Under the provisions of OSHA's Hazard Communication Standard, employers are responsible for informing employees of the identities and the hazards of workplace chemicals to which they may be exposed.

NASA Stennis Space Center (SSC) has established this program to provide NASA civil servant and contractor employees with information concerning potential health hazards associated with materials contained and used in their workplace.

OSHA revised the Hazard Communication Standard (HCS) to align with the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. GHS is an international approach to hazard communication, providing consistent criteria for classification of chemical hazards, and a standardized approach to label elements and safety data sheets.

2.0 Applicability

This work instruction applies to all NASA SSC civil servant employees and SSC contractors for the communication of hazards associated with the use of chemicals at SSC.

3.0 References

29 CFR 1910.1200, Hazard Communication

NPR 1800.1, NASA Occupational Health Program Procedures

SPR 1440.1, Records Management Program Requirements

SPR 8715.1, Safety and Health Program Requirements

SCWI 8500-0004-ENV, Hazardous Materials, Hazardous Waste, and Solid Waste Plan

SSC-862, Hazardous Materials Approval Form

4.0 Responsibilities

4.1 NASA Industrial Hygiene Manager (NIHM)

The NASA Industrial Hygiene Manager shall have overall responsibility for this instruction.

4.2 Hazard Communication Program Manager

The Stennis Operating Contract (SOC) Certified Industrial Hygienist is the Hazard Communication Program Manager (HCPM). The Hazard Communication Program Manager shall:

1. Provide support to the NIHM by developing, implementing, and maintaining the SSC Hazard Communication Program for SOC and NASA civil servant personnel.

2. Maintain the chemical inventory and the Safety Data Sheet (SDS) database for all current chemicals in use at SSC, in accordance with SCWI-8500-0004-ENV, *Hazardous Material, Hazardous Waste, and Solid Waste Plan.*

3. Distribute SDSs, as required, and replace and archive existing SDSs when updated SDS information is received.

4. Establish and maintain a training curriculum that complies with section 5.6 of this instruction.

5. Coordinate the annual Center-wide chemical inventory for SSC in accordance with SCWI-8500-0004-ENV, SSC *Hazardous Material, Hazardous Waste, and Solid Waste Plan*.

6. Provide oversight of the Hazard Communication Program.

7. Provide guidance to managers, supervisors, and personnel who utilize hazardous materials.

8. Review proposed operations and operating procedures for use of hazardous materials as requested.

9. Review SDSs for chemicals proposed for use at SSC in accordance with SCWI-8500-0004-ENV, SSC *Hazardous Material, Hazardous Waste, and Solid Waste Plan*.

10. Work with the requester to identify suitable substitutes for products containing asbestos, lead, isocyanates, methylene chloride, carcinogens, sensitizers, other acutely hazardous materials, and other restricted materials (see section 5.2 for a list of materials restricted at SSC).

11. Review requests from submitted SSC Hazardous Materials Approval Forms (SSC-862) for the use of hazardous materials when suitable substitutes cannot be found.

12. Periodically review this instruction for compliance with OSHA and NASA standards.

4.3 SOC Industrial Hygiene Professional(s)

SOC Industrial Hygiene Professionals will work under the direction of the Hazard Communication Program Manager and assist in carrying out the responsibilities of the HCPM identified in this Work Instruction.

4.4 Contractors

NASA contractors and construction contractors shall:

1. Develop, implement, and maintain a Hazard Communication Program that conforms to the procedural requirements of this instruction for their employees, as applicable.

2. Designate a Hazard Communication Program Manager to oversee their Hazard Communication Program.

3. Maintain a hazardous materials inventory in accordance with SCWI-8500-0004-ENV, *Hazardous Material, Hazardous Waste, and Solid Waste Plan*.

4. Furnish a copy of their inventory to NASA by close of business on January 10th of each year.

5. Submit approval requests for the use of hazardous materials when suitable substitutes cannot be found using SSC-862, SSC Hazardous Materials Approval Form. Refer to section 5.2 of this Work Instruction for more information.

4.5 Directors, Managers, Supervisors, and Team Leads

Directors, Managers, Supervisors and Team Leads shall ensure the safe use of hazardous materials in all areas under their control. This includes:

1. Having a copy of the hazardous materials inventory and SDSs readily available during all shifts for all hazardous chemicals used or stored in the work area,

2. Having a copy of this written Hazard Communication Program readily available to all employees,

3. Providing supplemental SDSs when needed in languages other than English,

4. Ensuring all hazardous chemical containers are properly labeled,

5. Ensuring employees receive timely and appropriate General Hazard Communication Training as specified in Section 5.6,

6. Providing or ensuring employees receive timely Workplace-Specific Hazard Communication Training as specified in Section 5.6,

7. Ensuring that worksite chemical inventories are updated annually and submitted to NASA in accordance with SCWI-8500-0004-ENV, *Hazardous Material, Hazardous Waste, and Solid Waste Plan,*

8. Providing advance communication to their respective Safety & Mission Assurance (S&MA) Office and all affected groups when a material that may present a hazard to persons other than the user will be introduced into the workplace, in compliance with OSHA requirements for multi-employer worksites,

9. Ensuring employees are aware of hazards of non-routine tasks,

10. Obtaining Industrial Hygiene consultation as needed for issues regarding the following: hazardous materials acquisition and use, SDSs, hazard identification, signs and symptoms of exposure, and protective measures,

11. Identifying and procuring suitable substitutes for products containing asbestos, lead, isocyanates, methylene chloride, carcinogens, sensitizers, other acutely hazardous materials, and other restricted materials (see section 5.2 for a list of materials restricted at SSC).

12. Providing applicable SDSs along with other relevant information to emergency personnel and medical care providers in the event of personnel exposure to a hazardous material,

13. Ensuring chemicals are properly stored when not in use, and

14. Ensuring good housekeeping practices are maintained within storage and chemical use areas.

4.6 Employees

Employee Hazard Communication responsibilities include:

1. Attending hazard communication training before working with a hazardous material(s),

2. Reading and understanding the SDS and container label for each hazardous material potentially exposed to or handled at work,

3. Following the protective measures specified for material handling and use of personal protective equipment,

4. Reading and understanding this Work Instruction and following all site procedures for acquisition, labeling, storage, and handling of hazardous materials,

5. Ensuring all container labels remain intact and legible. If labels become damaged or unreadable, it is the employee's responsibility to re-label the container with the product name and basic hazard information, and

6. Ensuring compliance with any "Special SSC Conditions" noted on product(s); SDSs are maintained in the SSC SDS database (e.g., approval "for laboratory use only").

5.0 Procedure

5.1 Employee Access

All personnel shall be provided access to this Work Instruction, 29 CFR 1910.1200 (OSHA Hazard Communication Standard), and SDSs. Copies are readily available electronically at https://ssctdstennis.ssc.nasa.gov/ to employees or their representatives. At any time, an employee may request a printed copy of a specific SDS from their supervisor in the event computer access to the SDS system is not possible.

5.2 Risk Reduction by Material Selection

Selecting less hazardous materials is a very effective way to reduce risk. Suitable substitutes are available for, and shall be used instead of, products containing asbestos, lead, isocyanates and methylene chloride and other very hazardous materials. Use of the following chemicals is restricted at SSC:

Restricted Materials	
Acrylonitrile	Isocyanates
Alpha-naphthylamine	Lead
Arsenic	Methyl chloromethyl ether
Asbestos	Methylene chloride
Benzene (in anything besides gasoline)	Methylenedianiline
Beta-propiolactone	N-nitrosodimethylamine
Beta-naphthylamine	Vinyl chloride
Bis-chloromethyl ether	1, 2-dibromo-3-chloropropane
Cadmium	1, 3-butadiene
Chlorinated parrafin	2-acetylaminoflourene
Ethyleneimine	3, 3'-dichlorobenzidine (and salts)
Ethylene Oxide	4-aminodiphenyl
Formaldehyde	4-dimethylaminoazo-benzene
Hexavalent Chromium (coatings and paints)	4-nitrobiphenyl
Hydrofluoric Acid	Manufactured nanomaterials
Blasting Material containing Crystalline Silica	
Beryllium in any concentration	

Any use of products containing these materials, because of the need for their unique chemical and physical properties, must be approved by the HCPM, NASA Environmental Representative, and the NIHM prior to use. Crystalline silica is restricted when contained in blasting material at concentrations >0.1% by weight.

Requests for approval for the use of hazardous materials, when there is no suitable substitute, shall be submitted using SSC-862, Hazardous Materials Approval Form. The request for approval must clearly document the analysis that less hazardous substitutes are not available. In addition, use of these products containing these materials must be coordinated with the organization's safety, health, and environmental program managers who will ensure there is a written hazard assessment and a written hazard prevention plan for their use.

Prior to use of these products, the implementation of appropriate exposure controls and hazard prevention is required per SPR 8715.1, *John C. Stennis Space Center Safety and Health Program Requirements.*

A sampling plan, a respiratory protection program, exposure monitoring, and waste management procedures may also be required with approved use of certain hazardous chemicals.

5.3 Inventory

Any organization storing or using hazardous materials is required to maintain a hazardous material inventory and furnish a copy of their inventory to NASA by close of business on January 10th of each year. The inventory will be maintained and submitted in accordance with SCWI-8500-0004-ENV, *Hazardous Material, Hazardous Waste, and Solid Waste Plan*.

5.4 Safety Data Sheets (SDSs)

Approved SDSs are available through the SDS database in Tech Doc.

SDSs which comply with 29 CFR 1910.1200 shall be provided with all chemicals received, formulated, or brought onsite at SSC. The SDS shall be written in accordance with 29 CFR 1910.1200.

5.5 Labeling

All chemical containers (INCLUDING small transfer containers for an employee's own immediate use) shall be labeled or tagged in accord with 29 CFR 1910.1200, *Hazard Communication Standard*. ALL small transfer containers shall be properly cleaned and labeled, regardless of how long the chemical is used. As a minimum, the label shall identify the chemical as it appears on the SDS, a harmonized signal word, pictogram, and hazard statement for each

hazard class and category. The National Fire Protection Association's (NFPA) or the Hazardous Materials Identification System's (HMIS) labeling system shall be used on transfer containers.

Exemptions for labeling requirements shall be made for chemical transfers from a labeled container into process glassware which is intended to function as process equipment for lab analysis.

Bulk storage containers, such as above ground storage tanks, underground storage tanks, or other containers with a capacity greater than 55 gallons, will be labeled using the NFPA labeling system.

Containers that are or become hazardous waste shall also bear hazardous waste labels in accordance with SCWI-8500-0004-ENV.

5.6 Information and Training

Employees shall be trained on hazardous chemicals in their work area(s) at the time of their initial assignment and whenever a new physical or health hazard is introduced into their work area(s).

Employees who have or use hazardous chemicals in their workplace shall successfully complete General Hazard Communication Training and Workplace-Specific Hazard Communication Training.

General Hazard Communication Training may be an instructor-led course or a computer-based course offered through the System for Administration, Training, and Educational Resources for NASA (SATERN). General Hazard Communication Training shall be successfully completed prior to an employee's initial assignment and triennially thereafter and shall include the following:

1. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.),

2. The physical and health hazards of the chemicals in the work area,

3. The measures employees can take to protect themselves from physical and health hazards, such as specific procedures the employer has implemented to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment,

4. The details of the hazard communication program, including an explanation of the labeling system (NFPA and HMIS) and the Safety Data Sheet, and how employees can obtain and use the appropriate hazard information, and

5. The opportunity for the employee(s) to ask questions concerning the hazard communication program.

Employees shall complete Workplace-Specific Hazard Communication Training prior to their initial workplace assignment and annually thereafter. Initial training is required for both new employees and when an existing employee is transferred into a different work area. Workplace-Specific Hazard Communication Training shall include:

1. An actual demonstration of the use of the computer system to access the SDSs used specifically in the work area(s),

2. Identification of hazardous chemicals which require special handling/use precautions, including personal protective equipment,

3. Providing a printed list of chemical products or substances stored or used in the specific work area,

4. Workplace-specific labeling requirements and the locations of labels, when needed,

5. The opportunity for hands-on use of the computer SDS database,

6. The opportunity for the employee(s) to ask questions concerning workplace-specific hazardous chemicals or products,

Employees shall be informed of:

1. The requirements of the OSHA Hazard Communication Standard,

2. Any operations in their work area where hazardous chemicals are present, and

3. The location and availability of the written hazard communication program, including the hazardous materials inventory and safety data sheets.

5.7 Non-Routine Tasks

In the event that work is to be performed where chemical hazards are either unknown or not familiar (example: non-routine tasks or unlabeled pipes), the supervisor shall determine the hazards and review those hazards with the worker(s) before work is performed. The supervisor shall contact the HCPM for assistance if hazard determination if needed.

5.8 Multi-Employer Workplace

SSC is a multi-employer worksite that is comprised of civil service employees, onsite contractors, offsite contractors, subcontractors, and tenants. The hazards posed by one employer shall be communicated to all affected employer/employees by signs, barriers, lights, verbal communication, or some other means. The HCPM shall be available for consultation or guidance to all SSC employees.

6.0 Records

Chemical inventory records shall be maintained by SOC in accordance with SPR 1440.1, *Records Management Program Requirements*.

SSC employee occupational health training records shall be maintained by the Office of Human Capital in accordance with SPR 1440.1.

SSC Hazardous Materials Approval Form SSC-862, shall be maintained by SOC Industrial Hygiene in accordance with SPR 1440.1.

7.0 Definitions

Container. Any bag, barrel, bottle, box, can, dispenser, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical.

Exposure (exposed). When an employee is subjected to a hazardous chemical in the course of employment through any route of entry (inhalation, skin contact or absorption, etc.) and includes potential (e.g., accidental or possible) exposure.

Hazard Not Otherwise Classified (HNOC). An adverse physical or health effect identified through evaluation of scientific evidence during the classification process that does not meet the specified criteria for the physical and health hazard classes. This does not extend coverage to adverse physical and health effects for which there is a hazard class, but the effect either falls below the cut-off value/concentration limit of the hazard class or is under a GHS hazard category that has not been adopted by OSHA (e.g., acute toxicity Category 5).

Hazard Statement. A statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.

Hazard Warning. Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which conveys the hazard(s) of the chemical(s) in the container(s).

Hazardous Chemical. Any chemical which is a physical hazard or a health hazard.

Health Hazard. A chemical which is classified as posing one of the following hazardous effects: acute toxicity (any route of exposure); skin corrosion or irritation; serious eye damage or eye irritation; respiratory or skin sensitization; germ cell mutagenicity; carcinogenicity; reproductive toxicity; specific target organ toxicity (single or repeated exposure); or aspiration hazard.

Immediate Use. When the hazardous chemical is under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label. An appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

Label elements. The specified pictogram, hazard statement, signal word and precautionary statement for each hazard class and category.

Physical Hazard. A chemical that is classified as posing one of the following hazardous effects: explosive; flammable (gases, aerosols, liquids, or solids); oxidizer (liquid, solid or gas); self-reactive; pyrophoric (liquid or solid); self-heating; organic peroxide; corrosive to metal; gas under pressure; or in contact with water emits flammable gas.

Pictogram. A composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under the Hazard Communication Standard for application to a hazard category.

Precautionary statement. A phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling.

Safety Data Sheet(s) (SDS). Informational written or printed material, supplied by chemical manufacturers/importers, which provide pertinent safety and health information concerning a hazardous chemical.

SDS Database. An electronic and a hard copy collection of Safety Data Sheets for hazardous materials used at SSC.

Signal word. A word used to indicate the relative level of severity of hazards and alert the reader to a potential hazard on the label. The signal words are "danger" and "warning." "Danger" is used for the more severe hazards, while "warning" is used for the less severe.

Use. To package, handle, react, or transfer.

Work Area. A room or defined space in a workplace where hazardous chemicals are produced or used and where employees are present.

Workplace. An establishment, job site, or project, at one geographical location containing one or more work areas.

8.0 Acronyms

ENV	Environmental
GHS	Globally Harmonized System
HCPM	Hazard Communication Program Manager
HCS	Hazard Communication Standard
HMIS	Hazardous Materials Identification System
HNOC	Hazard Not Otherwise Classified
NFPA	National Fire Protection Association
NIHM	NASA Industrial Hygiene Manager
OSHA	Occupational Safety and Health Administration
SATERN	System for Administration, Training, and Educational Resources for NASA
S&MA	Safety and Mission Assurance
SDS	Safety Data Sheet
SCWI	Stennis Common Work Instruction
SOC	Stennis Operating Contract
SPR	Stennis Procedural Requirements
SSC	Stennis Space Center

Appendix 1. OSHA Quick Card: Hazard Communication Labels

OSHA QUICK CARD™

Hazard Communication Standard Labels

OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS). All labels are required to have pictograms, a signal word, hazard and precautionary statements, the product identifier, and supplier identification. A sample revised HCS label, identifying the required label elements, is shown on the right. Supplemental information can also be provided on the label as needed.

For more information:

OSHA Occupational Safety and Health Administration

www.osha.gov (800) 321-OSHA (6742)